tical 8-year all cause survival despite higher secondary intervention with EVAR. Cardiovascular burden is more treacherous than neoplasm.

Author Disclosures: S. Sultan: Nothing to disclose; **W. Tawfick**: Nothing to disclose.

PS4.

Effect of Atmospheric Pressure on the Incidence of Ruptured Abdominal Aortic Aneurysm

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Objectives: To use hourly meteorological data and novel analytical methods to evaluate the relationship between short, medium, and long-term barometric pressure averages, and the incidence of Ruptured Abdominal Aortic Aneurysm (RAAA).

Methods: Records of all patients with a discharge diagnosis of RAAA in two close-proximity teaching hospitals between January 1st, 2002 and December 31st, 2009 were retrospectively examined for the time of admission to the Emergency Room (ER). This sample of 115 RAAAs was combined with Environment Canada's hourly weather statistics from the nearest weather station during the corresponding time period (70,112 hours). Two-proportion z-test was used to determine the strength of correlation between barometric pressure averages and the number of RAAA per 1000 hours (R/h) with a significance threshold of $p<0.05$.

Results: Hours in the lowest 5% based on 2-Day Average Pressure (3.13 R/h), lowest 10% based on 5-Day Average Pressure (2.71 R/h), lowest 2.5% based on 10-Day Average (4.01 R/h) and lowest 5% based on 30-Day Pressure Average (4.03 R/h) exhibited a significantly higher rupture frequency than the sample average (1.64 R/h). Conversely, hours in the top 10% based on instantaneous pressure (0.71 R/h) had a significantly decreased frequency of RAAA.

Conclusions: Our findings suggest a link between medium/long-term periods of consistently low atmospheric pressure and increased incidence of RAAA. The quality of our meteorological data and the precisely documented time of ER admission for RAAAs strengthen the validity of our conclusions. Potential limitations of our study include using ER admission time to approximate true time of RAAA and the non-inclusion of RAAA patients received at other hospitals proximal to our study centers. Further study of the relationship between atmospheric pressure and ruptured aneurysm using a more robust cohort of RAAAs and a more accurate estimate for timing of rupture event will add further to our understanding of the pathogenesis of RAAA.

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PS6.

Suprarenal Abdominal Aortic Aneurysm: Which Patients Would Benefit More from Fenestrated Endograft Rather than Open Repair?

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Objectives: The use of fenestrated endograft technology for suprarenal abdominal aortic aneurysms (SAAA) is on the rise, however, its application is limited to a few centers across the United States. Most of the SAAA are being repaired using an open approach. The objective of this study was to determine which patients are at high risk for open SAAA repair and should be especially considered for fenestrated endograft repair.

Methods: Patients who underwent open suprarenal AAA repair were identified from the 2007-09 National Surgical Quality Improvement Program - a multicenter, prospective database. Univariate and multivariate logistic regression analyses were performed.

Results: In 598 patients, median age was 73 years with 72.4% being males. Comorbidities included hypertension (86.0%), chronic obstructive pulmonary disease (COPD) (20.4%), prior cardiac surgery/intervention (37.8%), serum creatinine (Cr) >1.5 mg/dl (16.9%), diabetes (11.0%), and peripheral vascular disease requiring revascularization/amputation (PVD) (5.2%). Sixty patients (10.2%) underwent visceral/renal artery reimplantation. Median intraoperative transfusion was 2 units, operative time 237 minutes, and hospital length of stay 7 days. Thirty-day major morbidity and mortality rates were 30.1% and 4.5%, respectively. Complications included respiratory failure (18.1%), sepsis (10.4%), return to operating room (9.2%), new dialysis requirement (5.9%), cardiac arrest/myocardial infarction (4.0%), and graft failure (1.3%). On multivariate analyses, 5 predictors of postoperative mortality were identified: PVD, COPD, anesthesia time, female gender, and abnormal platelets. Three predictors of postoperative morbidity were identified: anesthesia time, intraoperative transfusion, and hypertension.

Conclusions: Patients with the risk factors identified on multivariate analyses are at increased risk for postoperative morbidity and mortality following open SAAA repair. They should be considered for fenestrated endograft rather than open suprarenal AAA repair.

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